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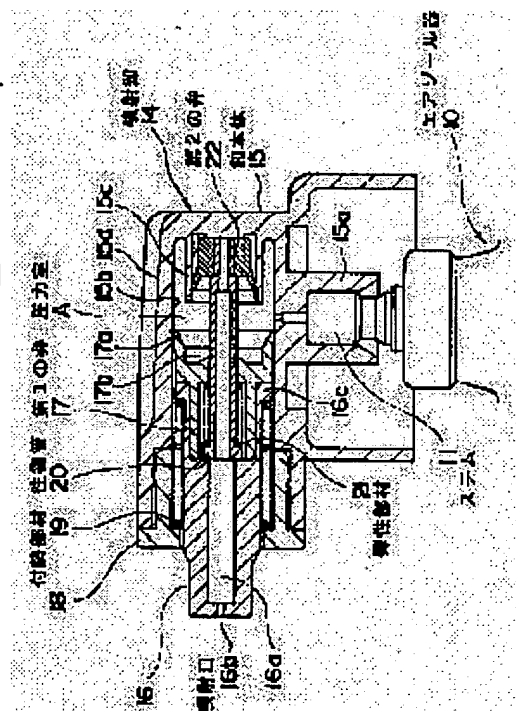
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(54) VIBRATION SPRAY PUSH BUTTON

(57)Abstract:

PROBLEM TO BE SOLVED: To improve durability and to obtain clear-cut intermittent spray.

SOLUTION: At use, a push button body 15 is pressed down by hooking a finger on a finger-hook section 15d to press stem 11. A substance within an aerosol container 10 is sprayed out of the stem 11 to enter into a pressure chamber A of the push button body 15. Corresponding with a pressure increase within the pressure chamber A, a first valve 17 is slid to a pressing member 19 to increase a volume within the pressure chamber A and to move a second valve 212 through a reciprocating pipe 20 together with the first valve 17. When the second valve 22 is moved over predetermined volume, a pushing contact of the second valve 22 to the button main body 15 is released to allow the pressure chamber A to communicate with an interior of the reciprocating pipe 20 and to spray the substance within the pressure chamber A through the reciprocating pipe 20 from a spray outlet 16b.



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CLAIMS

[Claim(s)]

[Claim 1] The main body of button which attaches in the stem of an aerosol machine and is prepared possible [depression] with the stem, The 1st valve which divides the pressure room containing the contents of said aerosol machine which prepares free [sliding] in the main body of button, and blows off from said stem, Both-way tubing which puts an inner edge into said pressure interior of a room while penetrating the 1st valve and turning an outer edge to an injection tip, The 2nd valve which opens and closes, and opens said pressure room for free passage in the both-way tubing, or intercepts the free passage when attaching in the both-way tubing, preparing in said pressure interior of a room and moving with said both-way tubing with sliding of said 1st valve, When the pressure of said pressure interior of a room rises by the contents of said aerosol machine which blows off from said stem, Resist the energization force, slide on said 1st valve, and said 2nd valve is moved with the 1st valve. Vibration ***** which comes to have the energization member which cancels the push reliance to said main body of button, energizes said 1st valve possible [said free passage of a pressure room and the inside of said both-way tubing], presses said 2nd valve against said main body of button, and intercepts said free passage of a pressure room and the inside of said both-way tubing.

[Claim 2] Vibration ***** according to claim 1 which comes to intervene in an elastic member between said 1st valve and said both-way tubing.

[Claim 3] The main body of button which attaches in the stem of an aerosol machine and is prepared possible [depression] with the stem, The 1st valve which divides the pressure room containing the contents of said aerosol machine which prepares free [sliding] in the main body of button, and blows off from said stem, The 2nd valve which intrudes with friction in the through tube of the 1st valve, and is prepared in said pressure interior of a room, The energization member which energizes said 1st valve, presses against this 2nd valve, and closes said through tube, When the pressure of said pressure interior of a room rises by the contents of said aerosol machine which blows off from said stem, said energization member is resisted, it slides on said 1st valve and said 2nd valve is moved more than the specified quantity with the 1st valve, Vibration ***** which comes to have the stop member which hangs and stops to the 2nd valve, separates this 2nd valve from said 1st valve, and opens said through tube.

[Claim 4] Vibration ***** according to claim 3 which really comes to build said stop member to said main body of button and one with shaping.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to vibration ***** which attaches in the stem of an aerosol machine, for example, is used for the purpose, such as hair fostering and circulation promotion. When it depresses and a stem is pushed in in detail, the contents in the aerosol machine which blows off from a stem are intermittently injected from an injection tip, and while adhering the contents to the affected part, it is related with vibration ***** which massages the affected part by the contents injected intermittently.

[0002]

[Description of the Prior Art] In this kind of vibration *****, conventionally When it depresses and a stem is pushed in, the contents in the aerosol machine which blows off from a stem are put into the pressure interior of a room of a main body of button. If a valve is closed with the fall of the pressure by the injection, injection is interrupted and the pressure of the pressure interior of a room rises after that while opening the valve of this pressure interior of a room with the rise of a pressure and injecting from an injection tip Contents are injected again, when it falls, injection is interrupted again and there are some which carry out intermittent injection of the contents from an injection tip by this repeat.

[0003] However, in this kind of *****, since the valve was immediately opened with the rise of the pressure of the pressure interior of a room and the valve was immediately closed with injection, sufficient clear intermittent injection for the massage effectiveness to be expectable was not able to be acquired.

[0004] for this reason, in the conventional vibration ***** For example, as shown in drawing 10 , when it attaches in the stem 2 of the aerosol machine 1, it depresses and a stem 2 is pushed in, The contents in the aerosol machine 1 spouted from a stem 2 are put in in the pressure room a of a main body of button 3, and it slides leftward in drawing, compressing the 1st energization member 5 for the 1st valve 4 in this pressure room a with the rise of a pressure. With sliding of the 1st valve 4 There are some which move the 2nd valve 7 of the shape of a needle which intrudes with friction in this valve 4 through the resistance ring 6 while compressing the 2nd energization member 8.

[0005] And when the energization force of the 2nd energization member 8 exceeded the frictional force of the resistance ring 6, the 2nd valve 7 was returned, between the 1st valve 4 was opened, and the contents in the pressure room a were injected from injection-tip 4a of the 1st valve 4 through the meantime. Then, it slides on the 1st valve 4 in the direction of drawing Nakamigi with the fall of the pressure by the injection, and the 2nd valve 7 is again intruded with friction in this valve 4 through the resistance ring 6. And when the pressure in the pressure room a rose, the 2nd valve 7 was opened again, contents were injected, when it fell, injection was interrupted again and intermittent injection of the contents was carried out from injection-tip 4a by this repeat.

[0006] Thereby, the aperture of the 2nd valve 7 is delayed and there is a thing which enabled it to acquire sufficient clear intermittent injection for the massage effectiveness to be expectable.

[0007]

[Problem(s) to be Solved by the Invention] however, to such vibration ***** ** From repeating penetrating and the extraction of the 2nd valve 7 to the 1st valve 4 through the resistance ring 6 at the time of use ** produces wear and it becomes impossible to acquire clear intermittent injection soon between the 1st valve 4 and the resistance link 6, since the 2nd valve 7 is opened by the energization force of the 2nd energization member 8 ** which cannot perform valve-opening actuation stably -- since the 2nd energization member 8 was needed with the 1st energization member 5, components mark increased and technical problems, such as becoming cost quantity, occurred.

[0008] Then, in vibration ***** which was mentioned above, invention given in claims 1 and 2 improves endurance, and aims at enabling it to acquire clear intermittent injection. While invention of a publication enables it to perform

valve-opening actuation to claims 3 and 4 stably, it aims at reducing components mark and aiming at a cost cut.

[0009]

[Means for Solving the Problem] Therefore, invention according to claim 1 is set to vibration *****. For example, the main body of button 15 which attaches in the stem 11 of the aerosol machine 10, and is prepared possible [depression] with the stem 11 as the gestalt of the operation explained using the following drawing 1 thru/or drawing 5 , The 1st valve 17 which divides the pressure room A containing the contents of said aerosol machine 10 which prepares free [sliding] in the main body of button 15, and blows off from said stem 11, The both-way tubing 20 which puts in an inner edge in said pressure room A while penetrating the 1st valve 17 and turning an outer edge to injection-tip 16b, The 2nd valve 22 which opens and closes, and opens said pressure room A for free passage in the both-way tubing 20, or intercepts the free passage when attaching in the both-way tubing 20, preparing in said pressure room A and moving with said both-way tubing 20 with sliding of said 1st valve 17, When the pressure in said pressure room A rises by the contents of said aerosol machine 10 which blows off from said stem 11, Resist the energization force, slide on said 1st valve 17, and said 2nd valve 22 is moved with the 1st valve 17. The push reliance to said main body of button 15 is canceled. Possible [said free passage of the pressure room A and the inside of said both-way tubing 20] Said 1st valve 17 is energized, said 2nd valve 22 is pressed against said main body of button 15, and it is characterized by the thing it comes to have the energization member 19 which intercepts said free passage of the pressure room A and the inside of said both-way tubing 20.

[0010] And in this invention according to claim 1, at the time of use, depress a main body of button 15 and a stem 11 is pushed in. Blow off from this stem 11 and the contents in the aerosol machine 10 are put in in the pressure room A of a main body of button 15. While resisting the energization member 19 with the rise of the pressure in the pressure room A, sliding on the 1st valve 17 and increasing the volume in the pressure room A When moving the 2nd valve 22 both through the both-way tubing 20 with the 1st valve 17 and moving the 2nd valve 22 more than the specified quantity, The push reliance of this 2nd valve 22 to a main body of button 15 is canceled, the pressure room A and the inside of the both-way tubing 20 are opened for free passage, and the contents in the pressure room A are injected from injection-tip 16b through the inside of the both-way tubing 20.

[0011] Then, if the pressure in the pressure room A declines with injection, the 1st valve 17 and 2nd valve 22 will be returned by the energization force of the energization member 19, the 2nd valve 22 will be pressed against a main body of button 15, the free passage of the pressure room A and the inside of the both-way tubing 20 will be intercepted, and injection of contents will be interrupted.

[0012] And if the pressure in the pressure room A rises, contents are injected again, if it falls, injection will be interrupted again and intermittent injection of the contents in the pressure room A will be carried out from injection-tip 16b by this repeat.

[0013] Invention according to claim 2 is characterized by the thing it comes to intervene in an elastic member 21 between said 1st valve 17 and said both-way tubing 20 in vibration ***** according to claim 1 as the gestalt of the operation explained using the following drawing 1 thru/or drawing 5 .

[0014] And in this invention according to claim 2, when the 1st valve 17 slides with the rise of the pressure in the pressure room A, an elastic member 21 is compressed, the 2nd valve 22 is moved behind time through the both-way tubing 20, the push reliance of this 2nd valve 22 to a main body of button 15 is canceled soon, and the pressure room A and the inside of the both-way tubing 20 are opened for free passage behind time.

[0015] The passage of the gestalt of the operation which explains invention according to claim 3 in vibration ***** using the following drawing 6 thru/or drawing 9 , The main body of button 35 which attaches in the stem 11 of the aerosol machine 10, and is prepared possible [depression] with the stem 11, The 1st valve 37 which divides the pressure room A containing the contents of said aerosol machine 10 which prepares free [sliding] in the main body of button 35, and blows off from said stem 11, The 2nd valve 40 which intrudes with friction in 37d of through tubes of the 1st valve 37, and is prepared in said pressure room A, The energization member 39 which energizes said 1st valve 37, presses against this 2nd valve 40, and closes 37d of said through tubes, The pressure in said pressure room A rises by the contents of said aerosol machine 10 which blows off from said stem 11. When resisting said energization member 39, sliding on said 1st valve 37 and moving said 2nd valve 40 more than the specified quantity with the 1st valve 37, It hangs and stops to the 2nd valve 40, this 2nd valve 40 is separated from said 1st valve 37, and it is characterized by the thing it comes to have stop member 35c which opens 37d of said through tubes.

[0016] And in this invention according to claim 3, at the time of use, depress a main body of button 35 and a stem 11 is pushed in. Blow off from this stem 11 and the contents in the aerosol machine 10 are put in in the pressure room A of a main body of button 35. While resisting the energization member 39 with the rise of the pressure in the pressure room A, sliding on the 1st valve 37 and increasing the volume in the pressure room A, when moving the 2nd valve 40 more

than the specified quantity with the 1st valve 37, Stop member 35c is hung and stopped to this 2nd valve 40, friction is resisted, the 2nd valve 40 is separated from the 1st valve 37, 37d of through tubes is opened, and the contents in the pressure room A are injected from injection-tip 36b through 37d of the through tube.

[0017] Then, if the pressure in the pressure room A declines with injection, the 1st valve 37 will be returned by the energization force of the energization member 39, the 2nd valve 40 will be again intruded in 37d of through tubes, this 2nd valve 40 will close 37d of through tubes, and injection of contents will be interrupted.

[0018] And if the pressure in the pressure room A rises, contents are injected again, if it falls, injection will be interrupted again and intermittent injection of the contents in the pressure room A will be carried out from injection-tip 36b by this repeat.

[0019] Invention according to claim 4 is characterized by what it really comes to build said stop member 35c to said main body of button 35 and one with shaping for in vibration ***** according to claim 3 as the gestalt of the operation explained using the following drawing 6 thru/or drawing 9.

[0020] And in this invention according to claim 4, when resisting friction and pulling out the 2nd valve 40 from 37d of through tubes, stop member 35c built to a main body of button 35 and one is hung and stopped to the 2nd valve 40 with one shaping.

[0021]

[Embodiment of the Invention] Hereafter, it explains per gestalt of implementation of this invention, referring to a drawing. The longitudinal section of vibration ***** according to claim 1 in the condition of having attached in the stem of an aerosol machine is shown in drawing 1.

[0022] What is shown with the sign 10 in drawing is the aerosol machine which projects a stem 11 upward. It comes as contents to contain the liquid which has for example, the hair-fostering effectiveness, a circulation facilitatory effect, etc. in this aerosol machine 10. Vibration ***** 14 by invention according to claim 1 is attached in the stem 11 of the aerosol machine 10.

[0023] The main body of button 15 really built with shaping using the resin ingredient is formed in ***** 14. While preparing downward stem fitting section 15a which fits a stem 11 into a core in a main body of button 15, cave hole 15b of the cross-section round shape opened to one side of the direction of a path is prepared in the upper part. And it comes to form tubed projected part 15c in the inner part of cave hole 15b towards the direction to open.

[0024] Into such cave hole 15b, it connects with a piston 16, the 1st valve 17 is formed free [sliding], and the pressure room A which is open for free passage in a main body of button 15 at said stem fitting section 15a is divided. It comes to prepare injection-tip 16b of this ***** 14 in a piston 16 at the point of main hole 16a. And the coil-spring-like energization member 19 is formed between inner edge flange 16c of a piston 16, and the fixed bush 18, and the 1st valve 17 is energized to the inner sense with a piston 16 by the energization member 19. It comes to attach the fixed bush 18 in the inlet port of cave hole 15b by press fit.

[0025] On the other hand, the both-way tubing 20 is penetrated and formed in a core at the 1st valve 17. The both-way tubing 20 puts in an inner edge in the pressure room A while turning an outer edge to injection-tip 16b. And the elastic member 21 of the shape of a coil spring prepared in an outer edge periphery is intervened between the 1st valve 17 and the both-way tubing 20, the outer edge of the both-way tubing 20 is always applied to a piston 16, and the inside of the both-way tubing 20 is opened for free passage to injection-tip 16b through main hole 16a.

[0026] In addition, outward elastic section 17a and inside sense elastic section 17b are prepared in the 1st valve 17. and outward elastic section 17a -- the inner circumference of cave hole 15b -- pressing -- inner sense elastic section 17b -- the periphery of the both-way tubing 20 -- pressing -- the inside of the pressure room A -- liquid -- it comes to hold densely

[0027] Now, the 2nd valve 22 is attached in the inner edge of the both-way tubing 20 in the pressure room A, and it contains in said tubed projected part 15c. And the 2nd valve 22 is pressed against a main body of button 15 by the energization force of said energization member 19, and it always comes to intercept the free passage of the pressure room A and the inside of the both-way tubing 20.

[0028] And at the time of use, it has the aerosol machine 10 by hand, and injection-tip 16b is turned to the affected part, a finger is hung on 15d of fingerplate sections, a main body of button 15 is depressed, and a stem 11 is pushed in in the aerosol machine 10. Then, the contents in the aerosol machine 10 blow off from this stem 11, enter in the pressure room A of a main body of button 15, and go up the pressure in the pressure room A.

[0029] With the rise of the pressure, the energization member 19 is resisted, it slides on the 1st valve 17, and the volume in the pressure room A is increased. Although an elastic member 21 is compressed with sliding of that 1st valve 17 in the beginning at this time, when the elastic force of that elastic member 21 became large, the both-way tubing 20 is moved with the 1st valve 17, the 2nd valve 22 also moves [both] and specified quantity migration of that 2nd valve

22 is carried out soon, the push reliance of this 2nd valve 22 to a main body of button 15 is canceled.

[0030] this shows drawing 2 -- as -- between a main body of button 15 and the 2nd valve 22 -- a clearance -- building -- the clearance -- letting it pass -- the pressure room A and the inside of the both-way tubing 20 -- open for free passage - - drawing 2 Nakaya -- ***** -- as -- the contents in the pressure room A are put in in the both-way tubing 20, and it injects from injection-tip 16b to the affected part through main hole 16a of a piston 16.

[0031] Then, at first, if the pressure in the pressure room A declines with injection, as shown in drawing 3, the both-way tubing 20 will be returned and an outer edge will be pressed against a piston 16 by the elastic force of an elastic member 21. Then, if a pressure declines further, as shown in drawing 4, the 1st valve 17 and 2nd valve 22 are returned, the 2nd valve 22 is again put in in tubed projected part 15c, it will press against a main body of button 15, the free passage of the pressure room A and the inside of the both-way tubing 20 will be intercepted, and injection of contents will be interrupted for the energization force of the energization member 19.

[0032] And when contents are injected again and it falls, as it is shown in drawing 2 and drawing 3, and it is shown in drawing 4, injection is interrupted [when the pressure in the pressure room A rises,] again, and intermittent injection of the contents in the pressure room A is carried out from injection-tip 16b by this repeat. And while adhering contents to the affected part, the affected part is massaged by the contents which carry out intermittent injection.

[0033] Thereby, in vibration ***** 14 shown in this drawing 1 thru/or drawing 4, the 2nd valve 22 is not immediately opened with the rise of the pressure in the pressure room A, but since it opens after carrying out specified quantity migration, the downtime of injection can be secured certainly and sufficient clear intermittent injection for the massage effectiveness to be expectable can be acquired.

[0034] Moreover, since a resistance ring is not used, the part greatly worn out can be lost and endurance can be improved.

[0035] By the way, in vibration ***** 14 shown in drawing 1 thru/or drawing 4, a main body of button 15 is really built with shaping using a resin ingredient, cave hole 15b is prepared in it, piston 16 and the 1st valve 17, and the 2nd energization member 19, both-way tubing 20, elastic member 21 and valve 22 are attached in the cave hole 15b, and the contents in the aerosol machine 10 were sideways injected from injection-tip 16b.

[0036] As shown, for example in drawing 5, however, a main body of button 15 Put in bush 15B in bottom case 15A, and upper case 15C is put and constituted on it. Dugout 15e is prepared in the interior, piston 16 and the 1st valve 17, and the 2nd energization member 19, both-way tubing 20, elastic member 21 and valve 22 are attached in the dugout 15e, and you may make it inject the contents in the aerosol machine 10 from injection-tip 16b straightly as it is.

[0037] In ***** 14 shown in this drawing 5, it changes into tubed projected part 15c of ***** 14 shown in drawing 1 thru/or drawing 4, and the 2nd valve 22 is put in in bush 15B. Slot m is formed outside at this bush 15B, and it is made for the contents of the aerosol machine 10 which blew off from the stem 11 to enter in the pressure room A through that slot m. In addition, in addition to this, it comes to use the sign used for the part to which ***** 14 shown in drawing 1 thru/or drawing 4 corresponds in this drawing 5 as it is.

[0038] In drawing 5, the newly attached sign 25 is Mt. Tsurugi which a piston 16 penetrates a core, and is attached and established in a main body of button 15. Much projected part 25a is projected and prepared upward in Mt. Tsurugi 25.

A sign 26 is covering of the shape of a cylinder which covers the surroundings of a main body of button 15 or Mt. Tsurugi 25, and attaches and prepares the lower part in the aerosol machine 10. A sign 27 is a cap which puts on

***** 14 and is attached in covering 26 at the time of un-using it.

[0039] And while cap 27 is removed and have the aerosol machine 10 in reverse, when using it, pressing projected part 25a of Mt. Tsurugi 25 against a head, depressing a main body of button 15, pushing in a stem 11, carrying out intermittent injection of the contents in the aerosol machine 10 from injection-tip 16b like the case where it is shown in drawing 1 thru/or drawing 4 henceforth and adhering contents to a head, a head is massaged by the contents which carry out intermittent injection.

[0040] Now, the longitudinal section of vibration ***** according to claim 3 is shown in drawing 6 below. The main body of button 35 really built with shaping using the resin ingredient is formed in illustration ***** 34. While preparing downward stem fitting section 35a which fits the stem of an aerosol machine into a core in a main body of button 35, cave hole 35b of the cross-section round shape opened to one side of the direction of a path is prepared in the upper part.

[0041] And in this example of illustration, stop member 35c which projects in tubed towards the direction to open is prepared in the inner part of cave hole 35b at one. It comes to form 35d of stop sections at the tip of stop member 35c.

[0042] Into such cave hole 35b, it connects with a piston 36, the 1st valve 37 is formed free [sliding], and the pressure room A which is open for free passage in a main body of button 35 at said stem fitting section 35a is divided. It comes to prepare injection-tip 36b of this ***** 34 in a piston 36 at the point of main hole 36a.

[0043] And the coil-spring-like energization member 39 is formed between inner edge flange 36c of a piston 36, and the fixed bush 38, and the 1st valve 37 is energized to the inner sense with a piston 36 by the energization member 39. It comes to attach the fixed bush 38 in the inlet port of cave hole 35b by press fit.

[0044] On the other hand, outward elastic section 37a is prepared in the 1st valve 37, and 37d of through tubes which have straight-line slot 37c at the core is prepared in it. And outward elastic section 37a is pressed against the inner circumference of cave hole 35b, and it comes to intrude in 37d of through tubes with friction in the tip of the 2nd valve 40 of the shape of a needle established in the pressure room A.

[0045] It inserts in two periphery slots on the tip respectively, the resistance ring 41 is formed in the 2nd valve 40, seal section 40a is formed in it on the way, and it comes to form in it diameter expansion section 40c which prepares step 40b in a end face, and enters in stop member 35c. and the energization force of the energization member 39 which energizes the 1st valve 37 to the inner sense with a piston 36 -- diameter expansion section 40c of the 2nd valve 40 -- the back of cave hole 35b -- pressing -- 37d hole edge of through tubes -- seal section 40a -- pushing -- 37d of through tubes -- closing -- the inside of the pressure room A -- liquid -- it comes to hold densely

[0046] And at the time of use, it has the aerosol machine 10 by hand, and injection-tip 36b is turned to the affected part, a finger is hung on fingerplate section 35e, a main body of button 35 is depressed, and a stem 11 is pushed in in the aerosol machine 10. Then, the contents in the aerosol machine 10 blow off from this stem 11, enter in the pressure room A of a main body of button 35, and go up the pressure in the pressure room A.

[0047] With the rise of the pressure, the energization member 39 is resisted, it slides on the 1st valve 37, and the volume in the pressure room A is increased. Since the tip of the 2nd valve 40 is intruded with friction through the resistance ring 41 in 37d of through tubes, the 2nd valve 40 also moves with migration of the 1st valve 37.

[0048] And if the 2nd valve 40 carries out specified quantity migration soon, as shown in drawing 7, step 40b hangs and carries out the stop of the stop member 35c to the 2nd valve 40 with the further migration in 35d of stop sections, friction will be resisted and the 2nd valve will be pulled out from 37d of through tubes. this shows drawing 8 -- as -- seal section 40a -- from the hole edge of 37d of through tubes -- detaching -- 37d of through tubes -- opening -- drawing Nakaya -- ***** -- a passage -- the inside of the pressure room A -- contents are put in in a piston 36 through straight-line slot of 37d of the through tube 37c, and it injects from injection-tip 36b through the main hole 36a.

[0049] Then, if the pressure in the pressure room A declines with injection, as the 1st valve 37 is returned by the energization force of the energization member 39 and it is shown in drawing 9, diameter expansion section 40c of the 2nd valve 40 is pressed in the inner part of cave hole 35b, the 2nd valve 40 is again intruded in 37d of through tubes, 37d hole edge of through tubes will be forced on seal section 40a, 37d of through tubes will be closed, and injection of contents will be interrupted.

[0050] And if the pressure in the pressure room A rises again, contents are injected again, if it falls, injection will be interrupted again and intermittent injection of the contents in the pressure room A will be carried out from injection-tip 36b by this repeat. And while adhering contents to the affected part, the affected part is massaged by the contents which carry out intermittent injection.

[0051] Thereby, in vibration ***** 34 shown in this drawing 6 thru/or drawing 9, since stop member 35c is hung on the 2nd valve 40 with the rise of the pressure in the pressure room A, a stop and the push reliance of seal section 40a to 37d hole edge of through tubes are canceled and it opens, valve-opening actuation can be performed stably, without using an elastic member. Moreover, components mark can be reduced by the ability using an energization member only as the energization member 39, and a cost cut can be aimed at.

[0052]

[Effect of the Invention] Therefore, according to invention according to claim 1, the 2nd valve is not immediately opened with the rise of the pressure of the pressure interior of a room, but since it opens after carrying out specified quantity migration, the downtime of injection can be secured certainly and sufficient clear intermittent injection for the massage effectiveness to be expectable can be acquired. Moreover, since a resistance ring is not used, the part greatly worn out can be lost and endurance can be improved.

[0053] According to invention according to claim 2, an elastic member is compressed with sliding of the 1st valve, both-way tubing is moved behind time, and since a pressure room and the inside of both-way tubing are delayed and it is open for free passage in addition to the above-mentioned effectiveness by moving the 2nd valve and canceling the push reliance of this 2nd valve to a main body of button soon with the both-way tubing, intermittent injection can much more be ensured.

[0054] According to invention according to claim 3, since a stop member is hung on the 2nd valve with the rise of the pressure of the pressure interior of a room, the push reliance of the 2nd valve to a stop and the 1st valve is canceled and it opens, valve-opening actuation can be performed stably, without using an energization member. Moreover, the

energization member used on the whole can be lessened, components mark can be reduced, and a cost cut can be aimed at.

[0055] According to invention according to claim 4, since a stop member is really built to a main body of button and one with shaping, in addition to effectiveness given in above-mentioned claim 3, components mark can be reduced and a cost cut can be aimed at.

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TECHNICAL FIELD

[Field of the Invention] This invention relates to vibration ***** which attaches in the stem of an aerosol machine, for example, is used for the purpose, such as hair fostering and circulation promotion. When it depresses and a stem is pushed in in detail, the contents in the aerosol machine which blows off from a stem are intermittently injected from an injection tip, and while adhering the contents to the affected part, it is related with vibration ***** which massages the affected part by the contents injected intermittently.

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EFFECT OF THE INVENTION

[Effect of the Invention] Therefore, according to invention according to claim 1, the 2nd valve is not immediately opened with the rise of the pressure of the pressure interior of a room, but since it opens after carrying out specified quantity migration, the downtime of injection can be secured certainly and sufficient clear intermittent injection for the massage effectiveness to be expectable can be acquired. Moreover, since a resistance ring is not used, the part greatly worn out can be lost and endurance can be improved.

[0053] According to invention according to claim 2, an elastic member is compressed with sliding of the 1st valve, both-way tubing is moved behind time, and since a pressure room and the inside of both-way tubing are delayed and it is open for free passage in addition to the above-mentioned effectiveness by moving the 2nd valve and canceling the push reliance of this 2nd valve to a main body of button soon with the both-way tubing, intermittent injection can much more be ensured.

[0054] According to invention according to claim 3, since a stop member is hung on the 2nd valve with the rise of the pressure of the pressure interior of a room, the push reliance of the 2nd valve to a stop and the 1st valve is canceled and it opens, valve-opening actuation can be performed stably, without using an energization member. Moreover, the energization member used on the whole can be lessened, components mark can be reduced, and a cost cut can be aimed at.

[0055] According to invention according to claim 4, since a stop member is really built to a main body of button and one with shaping, in addition to effectiveness given in above-mentioned claim 3, components mark can be reduced and a cost cut can be aimed at.

[Translation done.]

* NOTICES *

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MEANS

[Means for Solving the Problem] Therefore, invention according to claim 1 is set to vibration *****. For example, the main body of button 15 which attaches in the stem 11 of the aerosol machine 10, and is prepared possible [depression] with the stem 11 as the gestalt of the operation explained using the following drawing 1 thru/or drawing 5 , The 1st valve 17 which divides the pressure room A containing the contents of said aerosol machine 10 which prepares free [sliding] in the main body of button 15, and blows off from said stem 11, The both-way tubing 20 which puts in an inner edge in said pressure room A while penetrating the 1st valve 17 and turning an outer edge to injection-tip 16b, The 2nd valve 22 which opens and closes, and opens said pressure room A for free passage in the both-way tubing 20, or intercepts the free passage when attaching in the both-way tubing 20, preparing in said pressure room A and moving with said both-way tubing 20 with sliding of said 1st valve 17, When the pressure in said pressure room A rises by the contents of said aerosol machine 10 which blows off from said stem 11, Resist the energization force, slide on said 1st valve 17, and said 2nd valve 22 is moved with the 1st valve 17. The push reliance to said main body of button 15 is canceled. Possible [said free passage of the pressure room A and the inside of said both-way tubing 20] Said 1st valve 17 is energized, said 2nd valve 22 is pressed against said main body of button 15, and it is characterized by the thing it comes to have the energization member 19 which intercepts said free passage of the pressure room A and the inside of said both-way tubing 20.

[0010] And in this invention according to claim 1, at the time of use, depress a main body of button 15 and a stem 11 is pushed in. Blow off from this stem 11 and the contents in the aerosol machine 10 are put in in the pressure room A of a main body of button 15. While resisting the energization member 19 with the rise of the pressure in the pressure room A, sliding on the 1st valve 17 and increasing the volume in the pressure room A When moving the 2nd valve 22 both through the both-way tubing 20 with the 1st valve 17 and moving the 2nd valve 22 more than the specified quantity, The push reliance of this 2nd valve 22 to a main body of button 15 is canceled, the pressure room A and the inside of the both-way tubing 20 are opened for free passage, and the contents in the pressure room A are injected from injection-tip 16b through the inside of the both-way tubing 20.

[0011] Then, if the pressure in the pressure room A declines with injection, the 1st valve 17 and 2nd valve 22 will be returned by the energization force of the energization member 19, the 2nd valve 22 will be pressed against a main body of button 15, the free passage of the pressure room A and the inside of the both-way tubing 20 will be intercepted, and injection of contents will be interrupted.

[0012] And if the pressure in the pressure room A rises, contents are injected again, if it falls, injection will be interrupted again and intermittent injection of the contents in the pressure room A will be carried out from injection-tip 16b by this repeat.

[0013] Invention according to claim 2 is characterized by the thing it comes to intervene in an elastic member 21 between said 1st valve 17 and said both-way tubing 20 in vibration ***** according to claim 1 as the gestalt of the operation explained using the following drawing 1 thru/or drawing 5 .

[0014] And in this invention according to claim 2, when the 1st valve 17 slides with the rise of the pressure in the pressure room A, an elastic member 21 is compressed, the 2nd valve 22 is moved behind time through the both-way tubing 20, the push reliance of this 2nd valve 22 to a main body of button 15 is canceled soon, and the pressure room A and the inside of the both-way tubing 20 are opened for free passage behind time.

[0015] The passage of the gestalt of the operation which explains invention according to claim 3 in vibration ***** using the following drawing 6 thru/or drawing 9 , The main body of button 35 which attaches in the stem 11 of the aerosol machine 10, and is prepared possible [depression] with the stem 11, The 1st valve 37 which divides the pressure room A containing the contents of said aerosol machine 10 which prepares free [sliding] in the main body of button 35, and blows off from said stem 11, The 2nd valve 40 which intrudes with friction in 37d of through tubes of

the 1st valve 37, and is prepared in said pressure room A, The energization member 39 which energizes said 1st valve 37, presses against this 2nd valve 40, and closes 37d of said through tubes, The pressure in said pressure room A rises by the contents of said aerosol machine 10 which blows off from said stem 11. When resisting said energization member 39, sliding on said 1st valve 37 and moving said 2nd valve 40 more than the specified quantity with the 1st valve 37, It hangs and stops to the 2nd valve 40, this 2nd valve 40 is separated from said 1st valve 37, and it is characterized by the thing it comes to have stop member 35c which opens 37d of said through tubes.

[0016] And in this invention according to claim 3, at the time of use, depress a main body of button 35 and a stem 11 is pushed in. Blow off from this stem 11 and the contents in the aerosol machine 10 are put in in the pressure room A of a main body of button 35. While resisting the energization member 39 with the rise of the pressure in the pressure room A, sliding on the 1st valve 37 and increasing the volume in the pressure room A, when moving the 2nd valve 40 more than the specified quantity with the 1st valve 37, Stop member 35c is hung and stopped to this 2nd valve 40, friction is resisted, the 2nd valve 40 is separated from the 1st valve 37, 37d of through tubes is opened, and the contents in the pressure room A are injected from injection-tip 36b through 37d of the through tube.

[0017] Then, if the pressure in the pressure room A declines with injection, the 1st valve 37 will be returned by the energization force of the energization member 39, the 2nd valve 40 will be again intruded in 37d of through tubes, this 2nd valve 40 will close 37d of through tubes, and injection of contents will be interrupted.

[0018] And if the pressure in the pressure room A rises, contents are injected again, if it falls, injection will be interrupted again and intermittent injection of the contents in the pressure room A will be carried out from injection-tip 36b by this repeat.

[0019] Invention according to claim 4 is characterized by what it really comes to build said stop member 35c to said main body of button 35 and one with shaping for in vibration ***** according to claim 3 as the gestalt of the operation explained using the following drawing 6 thru/or drawing 9.

[0020] And in this invention according to claim 4, when resisting friction and pulling out the 2nd valve 40 from 37d of through tubes, stop member 35c built to a main body of button 35 and one is hung and stopped to the 2nd valve 40 with one shaping.

[0021]

[Embodiment of the Invention] Hereafter, it explains per gestalt of implementation of this invention, referring to a drawing. The longitudinal section of vibration ***** according to claim 1 in the condition of having attached in the stem of an aerosol machine is shown in drawing 1.

[0022] What is shown with the sign 10 in drawing is the aerosol machine which projects a stem 11 upward. It comes as contents to contain the liquid which has for example, the hair-fostering effectiveness, a circulation facilitatory effect, etc. in this aerosol machine 10. Vibration ***** 14 by invention according to claim 1 is attached in the stem 11 of the aerosol machine 10.

[0023] The main body of button 15 really built with shaping using the resin ingredient is formed in ***** 14. While preparing downward stem fitting section 15a which fits a stem 11 into a core in a main body of button 15, cave hole 15b of the cross-section round shape opened to one side of the direction of a path is prepared in the upper part. And it comes to form tubed projected part 15c in the inner part of cave hole 15b towards the direction to open.

[0024] Into such cave hole 15b, it connects with a piston 16, the 1st valve 17 is formed free [sliding], and the pressure room A which is open for free passage in a main body of button 15 at said stem fitting section 15a is divided. It comes to prepare injection-tip 16b of this ***** 14 in a piston 16 at the point of main hole 16a. And the coil-spring-like energization member 19 is formed between inner edge flange 16c of a piston 16, and the fixed bush 18, and the 1st valve 17 is energized to the inner sense with a piston 16 by the energization member 19. It comes to attach the fixed bush 18 in the inlet port of cave hole 15b by press fit.

[0025] On the other hand, the both-way tubing 20 is penetrated and formed in a core at the 1st valve 17. The both-way tubing 20 puts in an inner edge in the pressure room A while turning an outer edge to injection-tip 16b. And the elastic member 21 of the shape of a coil spring prepared in an outer edge periphery is intervened between the 1st valve 17 and the both-way tubing 20, the outer edge of the both-way tubing 20 is always applied to a piston 16, and the inside of the both-way tubing 20 is opened for free passage to injection-tip 16b through main hole 16a.

[0026] In addition, outward elastic section 17a and inside sense elastic section 17b are prepared in the 1st valve 17. and outward elastic section 17a -- the inner circumference of cave hole 15b -- pressing -- inner sense elastic section 17b -- the periphery of the both-way tubing 20 -- pressing -- the inside of the pressure room A -- liquid -- it comes to hold densely

[0027] Now, the 2nd valve 22 is attached in the inner edge of the both-way tubing 20 in the pressure room A, and it contains in said tubed projected part 15c. And the 2nd valve 22 is pressed against a main body of button 15 by the

energization force of said energization member 19, and it always comes to intercept the free passage of the pressure room A and the inside of the both-way tubing 20.

[0028] And at the time of use, it has the aerosol machine 10 by hand, and injection-tip 16b is turned to the affected part, a finger is hung on 15d of fingerplate sections, a main body of button 15 is depressed, and a stem 11 is pushed in in the aerosol machine 10. Then, the contents in the aerosol machine 10 blow off from this stem 11, enter in the pressure room A of a main body of button 15, and go up the pressure in the pressure room A.

[0029] With the rise of the pressure, the energization member 19 is resisted, it slides on the 1st valve 17, and the volume in the pressure room A is increased. Although an elastic member 21 is compressed with sliding of that 1st valve 17 in the beginning at this time, when the elastic force of that elastic member 21 became large, the both-way tubing 20 is moved with the 1st valve 17, the 2nd valve 22 also moves [both] and specified quantity migration of that 2nd valve 22 is carried out soon, the push reliance of this 2nd valve 22 to a main body of button 15 is canceled.

[0030] this shows drawing 2 -- as -- between a main body of button 15 and the 2nd valve 22 -- a clearance -- building -- the clearance -- letting it pass -- the pressure room A and the inside of the both-way tubing 20 -- open for free passage -- drawing 2 Nakaya -- ***** -- as -- the contents in the pressure room A are put in in the both-way tubing 20, and it injects from injection-tip 16b to the affected part through main hole 16a of a piston 16.

[0031] Then, at first, if the pressure in the pressure room A declines with injection, as shown in drawing 3, the both-way tubing 20 will be returned and an outer edge will be pressed against a piston 16 by the elastic force of an elastic member 21. Then, if a pressure declines further, as shown in drawing 4, the 1st valve 17 and 2nd valve 22 are returned, the 2nd valve 22 is again put in in tubed projected part 15c, it will press against a main body of button 15, the free passage of the pressure room A and the inside of the both-way tubing 20 will be intercepted, and injection of contents will be interrupted for the energization force of the energization member 19.

[0032] And when contents are injected again and it falls, as it is shown in drawing 2 and drawing 3, and it is shown in drawing 4, injection is interrupted [when the pressure in the pressure room A rises,] again, and intermittent injection of the contents in the pressure room A is carried out from injection-tip 16b by this repeat. And while adhering contents to the affected part, the affected part is massaged by the contents which carry out intermittent injection.

[0033] Thereby, in vibration ***** 14 shown in this drawing 1 thru/or drawing 4, the 2nd valve 22 is not immediately opened with the rise of the pressure in the pressure room A, but since it opens after carrying out specified quantity migration, the downtime of injection can be secured certainly and sufficient clear intermittent injection for the massage effectiveness to be expectable can be acquired.

[0034] Moreover, since a resistance ring is not used, the part greatly worn out can be lost and endurance can be improved.

[0035] By the way, in vibration ***** 14 shown in drawing 1 thru/or drawing 4, a main body of button 15 is really built with shaping using a resin ingredient, cave hole 15b is prepared in it, piston 16 and the 1st valve 17, and the 2nd energization member 19, both-way tubing 20, elastic member 21 and valve 22 are attached in the cave hole 15b, and the contents in the aerosol machine 10 were sideways injected from injection-tip 16b.

[0036] As shown, for example in drawing 5, however, a main body of button 15 Put in bush 15B in bottom case 15A, and upper case 15C is put and constituted on it. Dugout 15e is prepared in the interior, piston 16 and the 1st valve 17, and the 2nd energization member 19, both-way tubing 20, elastic member 21 and valve 22 are attached in the dugout 15e, and you may make it inject the contents in the aerosol machine 10 from injection-tip 16b straightly as it is.

[0037] In ***** 14 shown in this drawing 5, it changes into tubed projected part 15c of ***** 14 shown in drawing 1 thru/or drawing 4, and the 2nd valve 22 is put in in bush 15B. Slot m is formed outside at this bush 15B, and it is made for the contents of the aerosol machine 10 which blew off from the stem 11 to enter in the pressure room A through that slot m. In addition, in addition to this, it comes to use the sign used for the part to which ***** 14 shown in drawing 1 thru/or drawing 4 corresponds in this drawing 5 as it is.

[0038] In drawing 5, the newly attached sign 25 is Mt. Tsurugi which a piston 16 penetrates a core, and is attached and established in a main body of button 15. Much projected part 25a is projected and prepared upward in Mt. Tsurugi 25. A sign 26 is covering of the shape of a cylinder which covers the surroundings of a main body of button 15 or Mt. Tsurugi 25, and attaches and prepares the lower part in the aerosol machine 10. A sign 27 is a cap which puts on ***** 14 and is attached in covering 26 at the time of un-using it.

[0039] And while cap 27 is removed and have the aerosol machine 10 in reverse, when using it, pressing projected part 25a of Mt. Tsurugi 25 against a head, depressing a main body of button 15, pushing in a stem 11, carrying out intermittent injection of the contents in the aerosol machine 10 from injection-tip 16b like the case where it is shown in drawing 1 thru/or drawing 4 henceforth and adhering contents to a head, a head is massaged by the contents which carry out intermittent injection.

[0040] Now, the longitudinal section of vibration ***** according to claim 3 is shown in drawing 6 below. The main body of button 35 really built with shaping using the resin ingredient is formed in illustration ***** 34. While preparing downward stem fitting section 35a which fits the stem of an aerosol machine into a core in a main body of button 35, cave hole 35b of the cross-section round shape opened to one side of the direction of a path is prepared in the upper part.

[0041] And in this example of illustration, stop member 35c which projects in tubed towards the direction to open is prepared in the inner part of cave hole 35b at one. It comes to form 35d of stop sections at the tip of stop member 35c.

[0042] Into such cave hole 35b, it connects with a piston 36, the 1st valve 37 is formed free [sliding], and the pressure room A which is open for free passage in a main body of button 35 at said stem fitting section 35a is divided. It comes to prepare injection-tip 36b of this ***** 34 in a piston 36 at the point of main hole 36a.

[0043] And the coil-spring-like energization member 39 is formed between inner edge flange 36c of a piston 36, and the fixed bush 38, and the 1st valve 37 is energized to the inner sense with a piston 36 by the energization member 39. It comes to attach the fixed bush 38 in the inlet port of cave hole 35b by press fit.

[0044] On the other hand, outward elastic section 37a is prepared in the 1st valve 37, and 37d of through tubes which have straight-line slot 37c at the core is prepared in it. And outward elastic section 37a is pressed against the inner circumference of cave hole 35b, and it comes to intrude in 37d of through tubes with friction in the tip of the 2nd valve 40 of the shape of a needle established in the pressure room A.

[0045] It inserts in two periphery slots on the tip respectively, the resistance ring 41 is formed in the 2nd valve 40, seal section 40a is formed in it on the way, and it comes to form in it diameter expansion section 40c which prepares step 40b in a end face, and enters in stop member 35c. and the energization force of the energization member 39 which energizes the 1st valve 37 to the inner sense with a piston 36 -- diameter expansion section 40c of the 2nd valve 40 -- the back of cave hole 35b -- pressing -- 37d hole edge of through tubes -- seal section 40a -- pushing -- 37d of through tubes -- closing -- the inside of the pressure room A -- liquid -- it comes to hold densely

[0046] And at the time of use, it has the aerosol machine 10 by hand, and injection-tip 36b is turned to the affected part, a finger is hung on fingerplate section 35e, a main body of button 35 is depressed, and a stem 11 is pushed in in the aerosol machine 10. Then, the contents in the aerosol machine 10 blow off from this stem 11, enter in the pressure room A of a main body of button 35, and go up the pressure in the pressure room A.

[0047] With the rise of the pressure, the energization member 39 is resisted, it slides on the 1st valve 37, and the volume in the pressure room A is increased. Since the tip of the 2nd valve 40 is intruded with friction through the resistance ring 41 in 37d of through tubes, the 2nd valve 40 also moves with migration of the 1st valve 37.

[0048] And if the 2nd valve 40 carries out specified quantity migration soon, as shown in drawing 7, step 40b hangs and carries out the stop of the stop member 35c to the 2nd valve 40 with the further migration in 35d of stop sections, friction will be resisted and the 2nd valve will be pulled out from 37d of through tubes. this shows drawing 8 -- as -- seal section 40a -- from the hole edge of 37d of through tubes -- detaching -- 37d of through tubes -- opening -- drawing Nakaya -- ***** -- a passage -- the inside of the pressure room A -- contents are put in in a piston 36 through straight-line slot of 37d of the through tube 37c, and it injects from injection-tip 36b through the main hole 36a.

[0049] Then, if the pressure in the pressure room A declines with injection, as the 1st valve 37 is returned by the energization force of the energization member 39 and it is shown in drawing 9, diameter expansion section 40c of the 2nd valve 40 is pressed in the inner part of cave hole 35b, the 2nd valve 40 is again intruded in 37d of through tubes, 37d hole edge of through tubes will be forced on seal section 40a, 37d of through tubes will be closed, and injection of contents will be interrupted.

[0050] And if the pressure in the pressure room A rises again, contents are injected again, if it falls, injection will be interrupted again and intermittent injection of the contents in the pressure room A will be carried out from injection-tip 36b by this repeat. And while adhering contents to the affected part, the affected part is massaged by the contents which carry out intermittent injection.

[0051] Thereby, in vibration ***** 34 shown in this drawing 6 thru/or drawing 9, since stop member 35c is hung on the 2nd valve 40 with the rise of the pressure in the pressure room A, a stop and the push reliance of seal section 40a to 37d hole edge of through tubes are canceled and it opens, valve-opening actuation can be performed stably, without using an elastic member. Moreover, components mark can be reduced by the ability using an energization member only as the energization member 39, and a cost cut can be aimed at.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is drawing of longitudinal section of vibration ***** according to claim 1 in the condition of having attached in the stem of an aerosol machine.

[Drawing 2] It is drawing of longitudinal section at the time of valve-opening initiation during the use.

[Drawing 3] It is drawing of longitudinal section at the time of full valve opening during the use.

[Drawing 4] It is drawing of longitudinal section at the time of clausilium during the use.

[Drawing 5] It is drawing of longitudinal section of the other examples of vibration ***** according to claim 1 in the condition of having attached in the stem of an aerosol machine.

[Drawing 6] Drawing of longitudinal section of vibration ***** according to claim 3 is shown.

[Drawing 7] It is drawing of longitudinal section at the time of valve-opening initiation during the use.

[Drawing 8] It is drawing of longitudinal section at the time of full valve opening during the use.

[Drawing 9] It is drawing of longitudinal section at the time of clausilium initiation during the use.

[Drawing 10] It is drawing of longitudinal section of the conventional vibration ***** in the condition of having attached in the stem of an aerosol machine.

[Description of Notations]

10 Aerosol Machine

11 Stem

14 Vibration *****

15-35 Main body of button

15band35b Cave hole

15c Tubed projected part

16 Piston

16band36b Injection tip

17-37 The 1st valve

18-38 Fixed bush

19-39 Energization member

20 Both-way Tubing

21 Elastic Member

22-40 The 2nd valve

35c Stop member

35d Stop section

37c Straight-line slot

37d Through tube

40a Seal section

40b Step

40c Diameter expansion section

41 Resistance Ring

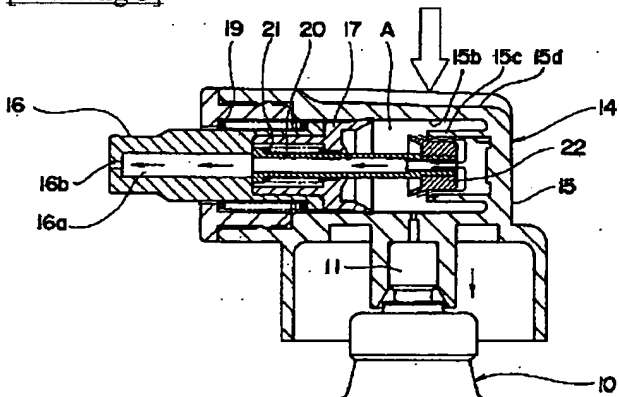
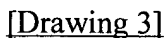
A Pressure room

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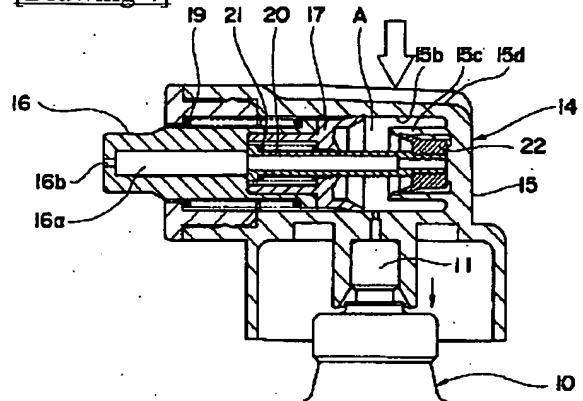
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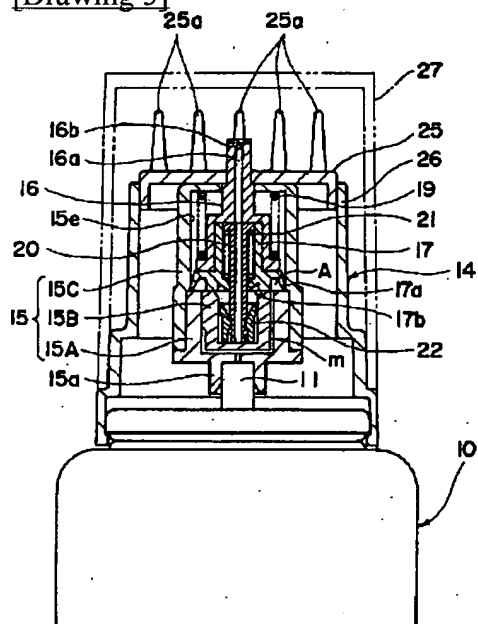
[Drawing 1]



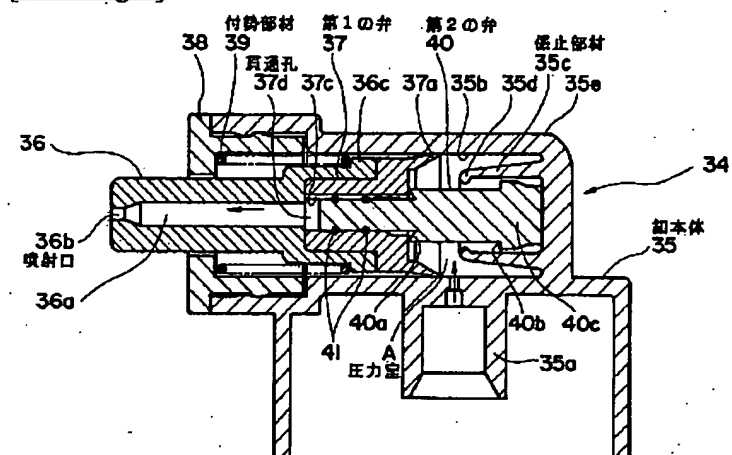
[Drawing 4]



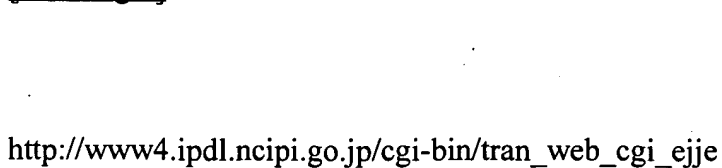
[Drawing 5]

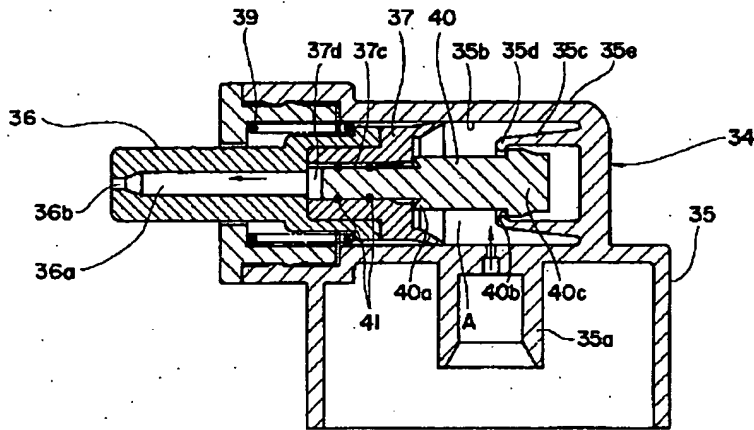


[Drawing 6]

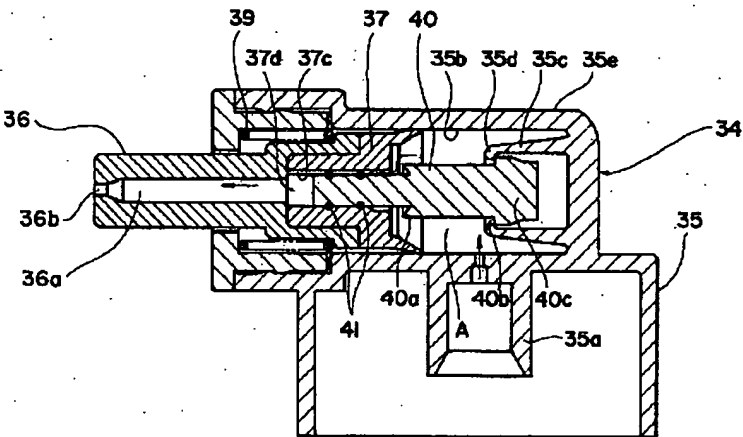


[Drawing 7]

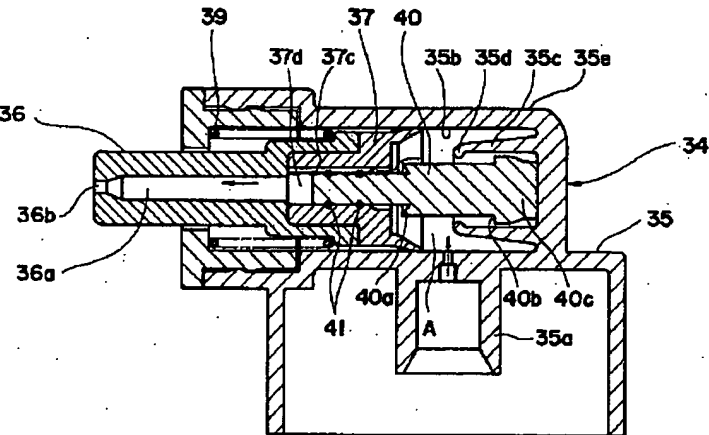




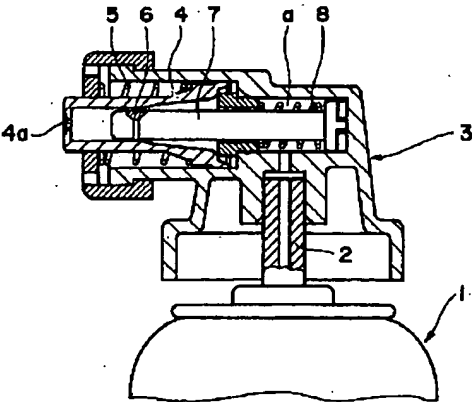
[Drawing 8]



[Drawing 9]



[Drawing 10]



[Translation done.]